

TULALIP INDIAN TRIBE Wellfield #1

Site Description

The Tulalip Indian Tribal Reservation is located on the western coast of the Washington, north of Seattle at Tulalip, Washington. There are four wells which are located near each other east of Tulalip Creek and west of two reservoirs at an altitude of approximately 200 feet above MSL. The wells withdraw 619.18 million gallons per year. All wells are screened in sand and gravel (IHS, 1982).

Hydrogeologic Conditions

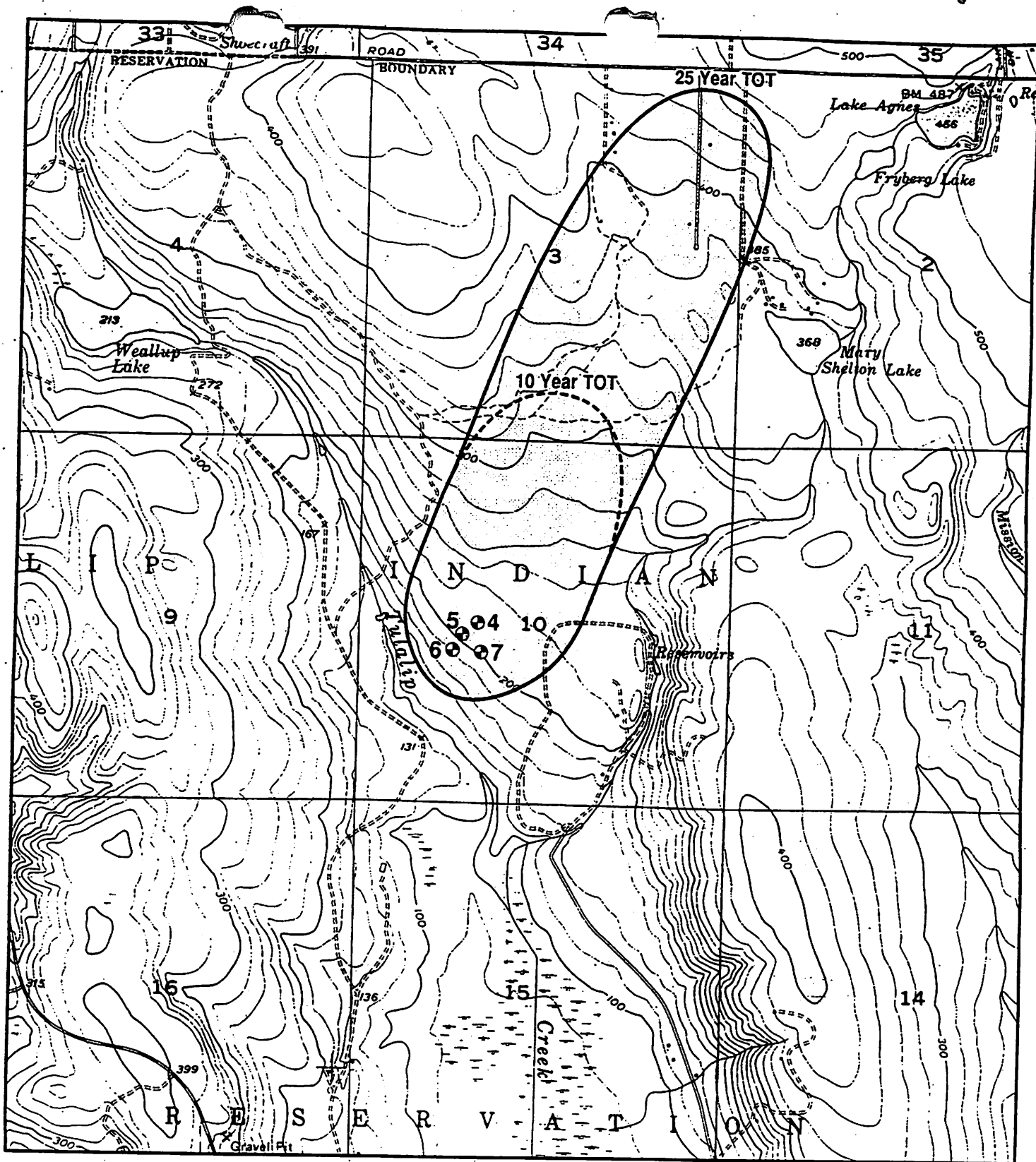
This portion of Washington receives approximately 35 inches (2.92 feet) of precipitation per year (Phillips and Donaldson, 1972). The ground water flow direction in the vicinity of the Tribal wells is to the south southwest (SAIC, 1994). A pump test was conducted on the wells and a transmissivity value of 1,116 ft^2/day was determined (SAIC, 1994).

Washington State Department of Natural Resources maps show this area being comprised of Quaternary sediments, dominantly glacial drift and alluvium (Schuster, 1992). The only site specific geologic information which could be obtained was from the boring logs for the wells. The logs indicates layers of sand, gravel and clay to a depth of 118 feet below land surface (IHS, 1982). The wellfield is located in the "Central Plateau Aquifer" identified by Rasmussen and Huse (1987).

WHPA Delineation

SAIC employed the GPTRAC module of EPA's computer model WHPA to delineate the protection area for these wells. Since the wells are located very close to each other the final model output encompasses all of the wells. The SAIC report lists a transmissivity value of 1,116 ft^2/day , a gradient in the area of 0.0156, a pumping rate of 618.18 mgy (82,777,620 $\text{ft}^3/\text{yr.}$). In addition to these values, an average porosity of 0.30 (Davis, 1980) was used for the sediments described in the boring logs. The protection area was delineated for 10 and 25 year time of travel zones.

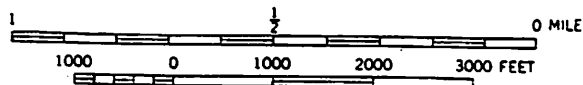
Tribal Contact: Harvey Eastman - (206) 651-1188



**DELINEATED WELLHEAD PROTECTION AREA
TULALIP INDIAN TRIBE
Wellfield #1**



- ⊙ Public Supply Well Location
- Wellhead Protection Area Boundary



SCALE 1:24 000

Source USGS Quadrangle (Tulalip - WA. 1978)

Horsley & Witten, Inc.

TULALIP INDIAN TRIBE Wellfield #2

Site Description

The Tulalip Indian Tribal Reservation is located on the western coast of the Washington, at Tulalip, Washington. There are two wells which comprise Wellfield #2. They are located near each other about 1.75 miles east of Tulalip, Washington on the north side of Route 530 at an altitude of approximately 100 feet above MSL. Well #1 withdraws 170.82 mgy and well #2 withdraws 202.36 mgy. Both wells are screened in sand and gravel.

Hydrogeologic Conditions

This portion of Washington receives approximately 35 inches (2.92 feet) of precipitation per year (Phillips and Donaldson, 1972). The ground water flow direction in the vicinity of wells #1 and #2 is probably to the south southwest, toward Tulalip Bay. Several pump tests were conducted on the wells and an average transmissivity value of 688 ft²/day was determined.

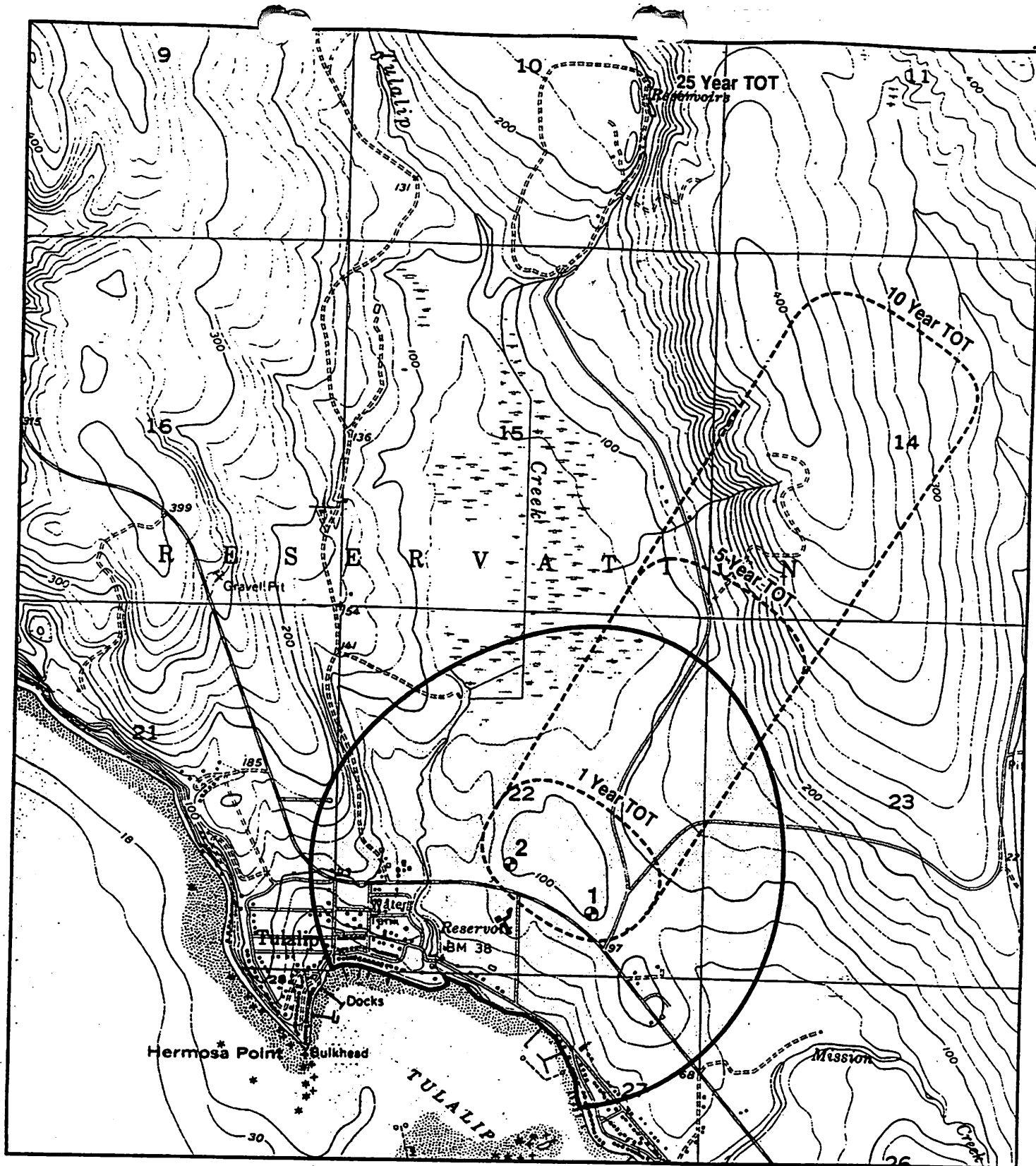
Washington State Department of Natural Resources maps show this area being comprised of Quaternary sediments, dominantly glacial drift and alluvium (Schuster, 1992). The site specific geologic information which could be obtained was from the boring logs for the wells. The logs indicates layers of sand, gravel and clay to a depth of 337.5 feet BLS. The wellfield is located in the "Coastal Deep Aquifer" identified by Rasmussen and Huse (1987).

WHPA Delineation

H&W employed the GPTRAC module of EPA's computer model WHPA to delineate the protection area for these wells. Since the wells are located very close to each other the final model output encompasses both of the wells. The pump tests performed on the wells list an average transmissivity value of 1,116 ft²/day. Based on static water levels from the wells, a gradient in the area of 0.028 was calculated. Each well was modeled individually with a pumping rate of 170.82 mgy (22,836,955 ft³/yr.) for Well #1 and 202.36 (27,053,070 ft³/yr.) for Well #2. In addition to these values, an average porosity of 0.25 (Davis, 1980) was used for the sediments described in the boring logs. The protection area was delineated for 1, 5, and 10 year time of travel zones.

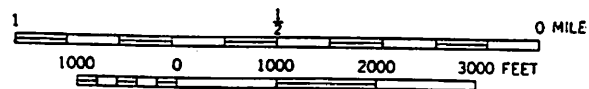
In addition to the WHPA computer model, H&W also used the CFR method of delineation so that a comparison between these two methods could be made. Based on a combined pumping rate of 373.18 mgy and an estimated average annual recharge rate of 17.5 inches, a radius of 3,300 feet was determined.

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DELINEATED WELLHEAD PROTECTION AREA **TULALIP INDIAN TRIBE** **Wellfield #2**

- Public Supply Well Location
- Wellhead Protection Area Boundary



SCALE 1:24 000

Source: USGS Quadrangle (Tulalip - WA. 1978)

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